1. (Currently Amended) An optical network system comprising:

a laser transceiver node for receiving downstream packets;

a subscriber optical interface coupled to the laser transceiver node for receiving downstream optical packets and converting the downstream optical packets into an electrical domain to support services of a subscriber;

wherein, the laser transceiver node further comprises:

a routing device for directing downstream packets in an electrical domain to a plurality of multiplexers;

[[a]] the plurality of multiplexers for receiving downstream packets from the routing device, wherein each multiplexer comprises a final stage for controlling bandwidth of the downstream packets in [[an]] the electrical domain relative to the subscriber optical interface, the routing device determining which downstream packets are sent to a respective multiplexer, each multiplexer comprising:

a plurality of classifiers for determining type of information contained in a downstream packet and for assigning a downstream packet to a particular policer, and

a plurality of policers for controlling bandwidth based upon a comparison between parameters assigned to each policer by a network provider and a downstream packet; and

laser transmitters coupled to the multiplexers, wherein each multiplexer is coupled to and directly modulates a respective laser transmitter for converting the downstream packets into an optical domain that are sent to a respective subscriber optical interface.

2. (Original) The optical network system of claim 1, wherein the parameters assigned to each policer comprise at least one of a peak rate, a burst size, and a sustained rate.

3. (Original) The optical network system of claim 1, wherein each policer controls bandwidth by assigning a weighted early random discard value to the packet.

4. (Previously Presented) The optical network system of claim 1, wherein each multiplexer further comprises a plurality of output buffers for storing at least one downstream packet received from a respective policer.

5. (Original) The optical network system of claim 1, further comprising a plurality of output buffers, each output buffer having an assigned priority value that is associated with an output buffer emptying sequence.

6. (Previously Presented) The optical network system of claim 5, wherein each output buffer evaluates a packet with a random early discard function that employs the weighted early random discard value.

7. (Original) The optical network system of claim 6, wherein the weighted early random discard value comprises a maximum drop probability value.

8. (Previously Presented) The optical network system of claim 1, further comprising a plurality of output buffers, each output buffer executes a random early discard function for a packet when an output buffer average volume is between a minimum and maximum threshold, the random early discard function employing the maximum drop probability value.

9. (Original) The optical network system of claim 1, wherein parameters assigned to a policer corresponds with a bandwidth subscription of a subscriber.

10. (Original) The optical network system of claim 9, wherein the bandwidth subscription measures a predetermined amount of a data to be received by a subscriber in bits per second.

11. (Original) The optical network system of claim 1, wherein one of the classifiers evaluates a differentiated service code point (DSCP) value of each downstream packet.

12. (Original) The optical network system of claim 1, wherein each classifier and each policer comprises one of a field programmable gate array (FPGA) and an application specific integrated circuit (ASIC).

13. (Currently Amended) A method for processing downstream packets of an optical network, comprising the steps of:

receiving downstream packets with a laser transceiver node comprising an exit portion of an optical network;

at [[an]] the exit portion of the optical network;

classifying a downstream packet by evaluating a header of the packet;

determining if the downstream packet matches at least one of rate and size parameters;

assigning one of two priority values to the downstream packet based upon the determination if the downstream packet matches one of rate and size parameters;

determining whether to store the downstream packet in one of a plurality of buffers based upon a weighted random early discard function that employs one of the priority values;

receiving the downstream packet directly from an output buffer with a laser transmitter; [[and]]

modulating the laser transmitter with the downstream packet;

receiving the downstream optical packet with a subscriber optical interface coupled to the laser transceiver node; and

converting the downstream optical packet into an electrical domain with the subscriber optical interface to support services of a subscriber.

14. (Original) The method of claim 13, wherein the step of determining if the downstream packet matches at least one of rate and size parameters further comprises the steps of:

determining whether a downstream packet exceeds a sustained rate; and

determining whether a downstream packet exceeds a burst size.

15. (Original) The method of claim 14, wherein the step of determining whether the downstream packet exceeds a sustained rate further comprises the step of executing a token bucket algorithm to measure the sustained rate.

16. (Original) The method of claim 13, further comprising the steps of:

determining if a downstream packet exceeds a peak rate; and

discarding a downstream packet if the downstream packet exceeds the peak rate.

17. (Original) The method of claim 16, wherein the step of determining whether the downstream packet exceeds a peak rate further comprises the step of executing a token bucket algorithm to measure the peak rate.

18. (Original) The method of claim 13, wherein the step of assigning one of two priority values to a downstream packet comprises the step of assigning a maximum drop probability value to the downstream packet.

19. (Original) The method of claim 18, wherein the step of assigning a maximum drop probability value further comprises the step of assigning the maximum drop probability value based upon a determination of whether a packet matches sustained rate.

20. (Original) The method of claim 19, wherein the communication traffic profile comprises one of a minimum bandwidth that a class or group of classes of subscribers is assured of receiving and a maximum bandwidth the subscriber can use over a time period.

21. (Original) The method of claim 13, further comprising the step of removing one or more packets from a plurality of output buffers in a predetermined order that corresponds with priority assignment given to each buffer relative to other buffers.

22. (Original) The method of claim 13, further comprising the step of executing the random early discard function that assesses parameters of the downstream packet when an output buffer average volume is between a minimum and maximum threshold, the random early discard function defining a drop probability value for the downstream packet.

23. (Original) The method of claim 13, wherein the step of classifying further comprises the step of evaluating a differentiated service code point (DSCP) value of the packet.

24. (Original) The method of claim 13, further comprising the steps of :

classifying the downstream packet with a classifier; and

mapping a downstream packet to policer that is associated with the classifier.

25. (Currently Amended) A[[n]] network policer system comprising:

an optical network comprising:

a data service hub for generating downstream data packets;

a transceiver node coupled to the data service ~~node at~~ hub and comprising an exit path [[of]] relative to the data service hub for receiving and processing the downstream data packets, the transceiver node further comprising:

a routing device for directing the downstream data packets in an electrical domain to a plurality of multiplexers;

the plurality of multiplexers for receiving downstream packets from the routing device, wherein each multiplexer comprises a final stage for controlling bandwidth of the downstream packets in an electrical domain relative to a subscriber optical interface, the routing device determining which downstream packets are sent to a respective multiplexer, each multiplexer comprising:

a plurality of classifiers for determining type of information contained in a downstream packet, and

a plurality of policers for controlling bandwidth by one of discarding packets and assigning one of two priority values to a downstream packet;

a plurality of buffers for receiving downstream packets from the policers;

a laser transmitter coupled directly to the buffers for propagating the downstream packets over an optical waveguide;

an optical tap coupled to the optical waveguide; and

[[a]]the subscriber optical interface coupled to the optical tap for converting the downstream packets from an optical domain into an electrical domain that support services of a subscriber.

26. (Previously Presented) The network policer system of claim 25, wherein the plurality of buffers corresponding to the priority assignment and execute a weighted random early discard function.

27. (Previously Presented) The network policer system of claim 25, wherein the transceiver node further comprises a routing device for passing downstream packets to the classifiers.

28. (Original) The network policer system of claim 25, wherein the priority values comprise weighted early random discard values.

29. (Original) The network policer system of claim 28, wherein weighted early random discard values comprise maximum drop probability values.

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30. (Currently Amended) A method for policing downstream data packets exiting an optical network, comprising the steps of:

forming exit pathways of the optical network within a laser transceiver node;

positioning a plurality of classifiers and policers at directly adjacent to the exit pathways of [[a]] the optical network, each exit pathway comprising a laser transmitter and an optical waveguide;

discarding downstream packets in an electrical domain with the policers if they exceed a peak rate;

assigning one of at least two priority values to each downstream packet with the policers; [[and]]

controlling downstream data packet egress from the network in an electrical domain at a position directly adjacent to the exit pathways by evaluating the priority values with the policers;

receiving downstream data packets from the policers with a laser transmitter; [[and]]

converting the downstream data packets into an optical domain with the laser transmitter;

propagating the downstream optical data packets over an optical waveguide;

receiving the downstream optical data packets with a subscriber optical interface; and

converting the downstream optical data packets into an electrical domain with the subscriber optical interface for supporting services of a subscriber.

31. (Original) The method of claim 30, wherein the step of assigning one of at least two priority values further comprises the steps of:

determining if a downstream packet matches a sustained rate; and

determining if a downstream packet matches a burst size.

32. (Original) The method of claim 30, wherein the step of controlling downstream data packet egress from the network comprises the step of determining whether to admit a downstream packet to one of a plurality of buffers based upon a weighted random early discard function that employs one of the priority values.

33. (Original) The method of claim 30, wherein the step of assigning one of at least two priority values comprises the step of assigning a maximum drop probability value to each downstream packet.

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